

PAT-NO: JP411049571A

DOCUMENT-IDENTIFIER: JP 11049571 A

TITLE: SILICON NITRIDE SINTERED COMPACT AND
ITS PRODUCTION

PUBN-DATE: February 23, 1999

INVENTOR-INFORMATION:

NAME

MATSUBARA, KATSURA

URASHIMA, KAZUHIRO

ASSIGNEE-INFORMATION:

NAME

NGK SPARK PLUG CO LTD

COUNTRY

N/A

APPL-NO: JP09220651

APPL-DATE: July 31, 1997

INT-CL (IPC): C04B035/599, C04B035/584

ABSTRACT:

PROBLEM TO BE SOLVED: To obtain a dense high strength sintered compact by a single gas pressure sintering process without requiring a large-scale apparatus by firing a green compact consisting of a powdery starting material for Si_3N_4 , Yb_2O_3 powder, a powdery Mg compd. and a powdery Al compd. in two stages under specified conditions in an inert atmosphere.

SOLUTION: The green compact is preferably fired in two stages in the inert atmosphere. In the 1st stage, the green compact is heated

sintering and simultaneously powder of TiN or metallic Ti or fine particles of TiO_2 or the like which is converted into TiN or metallic Ti during sintering are added to prepare a powdery mixture. This mixture is sintered at about $1,780^\circ\text{C}$ under about 300kg/cm^2 pressure for about 90min to obtain the titled ceramics made of an Si_3N_4 -additive type sintered body contg. 2~30wt.% fine grains of TiN or metallic Ti dispersed in the second phase of the grain boundary and in the Si_3N_4 grains.

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